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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,782	12/12/2001	Stephen Memory	665.00947	9531

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WOOD, PHILLIPS, VAN SANTEN, CLARK & MORTIMER
SUITE 3800
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CHICAGO, IL 60661

EXAMINER

DUONG, THO V

ART UNIT PAPER NUMBER

3743

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/020,782	Applicant(s) MEMORY ET AL.	
	Examiner Tho v Duong	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,13-20 and 23-35 is/are pending in the application.
- 4a) Of the above claim(s) 14-19 and 24-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,13,20 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt of applicant's amendment and Terminal Disclaimer filed 11/29/2004 is acknowledged. Claims 9, 13-20 and 23-35 are pending. Claims 14-19 and 24-35 remain withdrawn from further consideration.

Response to Arguments

The rejections against claims 8, 13 and 23 under double Patenting have been withdrawn in view of the Terminal Disclaimer.

In view of the current amendment, the rejection of claims 13 and 20 under 103 (a) as being unpatentable over Waldorf in view of Martins, has been withdrawn.

Applicant's arguments filed 11/29/2004 have been fully considered but they are not persuasive. In response to applicant's remarks (page 9) that the examiner has ignored applicant's argument presented in Amendment B, the examiner disagrees because applicant's argument is based on Hoshino's desired method of manufacturing, which is "the simultaneous bending of the tubes 1 of Hoshino et al..." This argument of applicant basing on the desired method of manufacturing was fully responded in the Office Action sent 8/24/2004 (page 7). Moreover, the responses to the applicant's argument about the desired method of manufacturing is as follows:

In response to applicant's remarks (pages 10-12), the examiner take a notice that the applicant consistently argues that the use of a common fin between tubes would complicate or prevent the Hoshino's heat exchanger being made from its preferred manufacturing method. Therefore, the combination of the references is improper. The examiner reminds the applicant that reference to Hoshino was not relied on to show the method of forming a heat exchanger but

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a final product, which is a heat exchanger having rows of aligned tubes in hydraulic series. The final product may be produced by several other methods. Therefore, one of ordinary skill in the art employing an integral fin with thermal breaks would recognize the manufacturing method of Hoshino et al is not suitable and employ other methods such as installing the common fin after the tubes has been bent. With respect to applicant's remarks (page 13), the examiner agrees with respect to consideration of the reference as a whole. However, the device of Hoshino et al is a final product, which discloses rows of aligned tubes in hydraulic series.

With respect to 2143.01 the proposed modification does not change the principle of operation of Hoshino et al of exchanging heat and the proposed modification does not render the prior art of Hoshino et al unsatisfactory for its intended purpose as a heat exchanger since heat is still transmitted through tubes and fins.

Applicant's argument that since Hoshino's separated fins would already achieve a minimum heat conduction between tubes, it would improper to modify the common fin with thermal break for the purpose of minimizing the heat conduction, has been very carefully considered but is not deemed to be persuasive. In response to this argument, the examiner reminds the applicant that the motivation for employing a common fin into Hoshino's heat exchanger is not for only minimizing the heat conduction between two tubes but also for facilitating the assembly of the heat exchanger in term of using a common fin rather than many separated fins, which in turn make the heat exchanger more compact. In another words, the use of a common fin without thermal breaks between two tubes would achieve the purpose of facilitating the assembly and compactness of the heat exchanger. However, this common fin without thermal breaks would result in tremendous heat conduction between tubes. Therefore,

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the thermal breaks such as slits formed in the common fin would minimize the heat conduction between tubes while facilitating the assembly and compactness of the heat exchanger. The use of separated fins, which Hoshino discloses, would achieve minimum heat conduction between the tubes, but the heat exchanger is not compact and has more fins to be installed individually into the heat exchanger.

With regards applicant's argument that the motivation of "make the heat exchanger more compact" has only been stated in support of the rejection based on Martins and has never been relied on in support of the rejection based on Stoynoff, the examiner wants to refer to the clarification in the Office action, page 8, second paragraph, sent 8/24/2004.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8,13,20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshino et al. (US 5,531,268) in view of Stoynoff (US 2003/0075307A1). Hoshino discloses (figures 1 and 2) a heat exchanger used as an evaporator or a condenser in a car air conditioner which is well known in the art as a refrigeration system including compressor and transcritical refrigerant, the heat exchanger having a front and a back, a plurality of spaced rows of flattened tubes (1) from front to back and defining aligned tube runs (2,3) in each rows; serpentine fins (12) abutted to adjacent tube runs; and the aligned ones of the tube runs being connected in

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hydraulic series. Hoshino does not disclose that the fins are common to each of the rows and to have slit without removal of any material from the fin.

Stoynoff et al. discloses (figures 1 and 2) a heat exchanger comprising a plurality of spaced apart tubes (14,32) wherein fins (16,34) are common in each row of tubes and separated the first tube run from the second tube run by slits (50) formed without removal of any fin material for the purpose of minimizing heat conduction between two tube runs and facilitating assembly. Since Hoshino and Stoynoff are both from the same field of endeavor and/or analogous art, the purpose disclosed by Stoynoff would have been recognized in the pertinent art of Hoshino. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Stoynoff's teaching in Hoshino's device for the purpose of minimizing heat conduction and facilitating assembly as recognized by Stoynoff.

Claims 8,13,20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoshino et al. (US 5,531,268) in view of Martin et al. (US 6,502,305). Hoshino discloses (figures 1 and 2) a heat exchanger used as an evaporator or a condenser in a car air conditioner which is well known in the art as a refrigeration system including compressor and transcritical refrigerant, the heat exchanger having a front and a back, a plurality of spaced rows of flattened tubes (1) from front to back and defining aligned tube runs (2,3) in each rows; serpentine fins (12) abutted to adjacent tube runs; and the aligned ones of the tube runs being connected in hydraulic series. Hoshino does not disclose that the fins are common to each of the rows and to have slit without removal of any material from the fin. Martin further discloses (figures 1 and 5) a heat exchanger module (1,2) having a front and a back; a plurality of spaced rows of flattened tubes (5,10) from front to back and defining aligned tube runs in each row; fins (30) abutted to

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adjacent tube runs in each row and extending from front to back so that each fin is common to each of the rows and slits (22) extending completely through the fin at a location in the space between the tube run. Martin further discloses (column 4, lines 5-15) that the slits (22) are formed without removal of any fin material. The motivation to combine the Hoshino and Martin is clearly stated in column 1, lines 37-47 that a heat exchanger with common fins such as common fins (30) would simplify the manufacture and make the heat exchanger more compact and furthermore to minimize the heat transfer between various heat-exchange region of the fin. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Martin's teaching in Hoshino's heat exchanger to simplify the manufacture and make the heat exchanger more compact.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tho v Duong
Examiner
Art Unit 3743



TD
February 8, 2005